the loss of weight is then about 8 per cent. by a heat of 260°, the amount of this loss is 10 per cent. When the heat is so great as to occasion decomposition, the saline matter contained in the wheat fuses, and a portion of the carbon becomes so entangled or firmly adherent to it, as to be incapable of separation by burning. Hence he recommends, in order to obtain greater uniformity in the results, that the wheat subjected to these experiments should be dried at a low temperature, such as that of a room in summer, and be allowed to remain a few days under its influence. The author tried the effect of the addition of nitric acid, with a view to save time by accelerating the combustion; but found that the results could not be relied upon when this plan was adopted, and he was therefore obliged to relinquish it. He next directed his inquiries to the ascertaining whether the quantity of inorganic matter was in proportion to the specific gravity of the grain, that is, to its weight per bushel; and this he found in general to be the case. The conclusion he deduces from this investigation is, that the mean amount of inorganic matter removed from the soil by the grain of a crop of wheat is exactly one pound per acre.

"On Benzoline, a new organic Salt-base obtained from Oil of Bitter Almonds." By George Fownes, Esq., F.R.S.

Pure oil of bitter almonds is converted, by the action of a strong solution of ammonia, into a solid white substance having a crystalline form, and which was termed by M. Laurent *hydrobenzamide*. The author found that this substance, by the further action of alkalies, became harder and less fusible than before, and not differing in chemical composition from the original substance, but exhibiting the properties of an organic salt-base. To this substance the author gives the name of *benzoline*. He finds that the salts which it forms by combination with acids are, in general, remarkable for their sparing solubility; and that many of them, as the hydrochlorate, the nitrate and the sulphate, are crystallizable. Of the properties of these salts the author gives a detailed account.

June 5, 1845.

Very Rev. DEAN OF ELY in the Chair.

"Electro-Physiological Researches." Memoir First. By Professor Carlo Matteucci. Communicated by Michael Faraday, Esq., D.C.L., F.R.S.

The author describes several arrangements by which he was enabled to make new experiments in confirmation of the laws of muscular currents, of which he has given an account in his recent work, entitled "Traité des Phénomènes Electro-Physiologiques des Animaux." He finds that, in these experiments, the employment of a galvanometer is unnecessary, as the sensibility of the electroscopic frog